CLAIMS

1. An image display apparatus, in which a current TV field period is divided into a plurality of sub-fields that are respectively given luminance weights and are arranged in order of time, and a gray-scale image for the current TV field period is displayed by selecting a combination of sub-fields for each pixel and sustaining a light emission state in each pixel during the selected sub-fields, characterized in that

when arranged in ascending order of luminance weight, the plurality of sub-fields include at least one sub-field whose luminance weight is smaller than one-half of a luminance weight of the next sub-field.

2. An image display apparatus, in which a current TV field period is divided into a plurality of sub-fields that are respectively given luminance weights and are arranged in order of time, and a gray-scale image for the current TV field period is displayed by selecting a combination of sub-fields for each pixel and sustaining a light emission state in each pixel during the selected sub-fields, characterized in that

when the plurality of sub-fields are arranged in ascending order of luminance weight with an "i"th smallest luminance weight

being denoted by W_i, the plurality of sub-fields are respectively given such luminance weights that "n" exists where $W_1+W_1+W_2+...+W_n<W_{n+1}$.

3. An image display apparatus, in which a current TV field period is divided into a plurality of sub-fields that are respectively given luminance weights and are arranged in order of time, and a gray-scale image for the current TV field period is displayed by selecting a combination of sub-fields for each pixel and sustaining a light emission state in each pixel during the selected sub-fields, characterized in that

when the plurality of sub-fields are arranged in ascending order of luminance weight with a "j"th smallest luminance weight being denoted by W_j, the plurality of sub-fields are respectively given such luminance weights that "n" and at least two "i"s exist where $W_i+W_1+W_2+...+W_n<W_{n+1}$.

4. An image display apparatus, in which a current TV field period is divided into a plurality of sub-fields that are respectively given luminance weights and are arranged in order of time, and a gray-scale image for the current TV field period is displayed by selecting a combination of sub-fields for each pixel and sustaining a light emission state in each pixel during

the selected sub-fields, wherein a coding pattern that specifies a sum of luminance weights of all sub-fields in the current TV field period is determined in accordance with a characteristic of input pixel image signals corresponding to the image of the current TV field period, characterized in that

when a reference TV field period is divided into a plurality of sub-fields that are respectively given luminance weights, and a ratio of the sum of luminance weights of all sub-fields in the current TV field period to a sum of luminance weights of all sub-fields in the reference TV field period is denoted by K, the current TV field period includes

(a) one or more sub-fields whose luminance weights are obtained by multiplying luminance weights of predetermined sub-fields in the reference TV field period, respectively by coefficients no greater than K, and

(b) one or more sub-fields whose luminance weights are obtained by multiplying luminance weights of predetermined sub-fields in the reference TV field period, respectively by coefficients greater than K.

5. The image display apparatus of Claim 4,

wherein the coefficients no greater than K and the coefficients greater than K are determined based on a rule which

is defined by an ascending order of luminance weight in the reference TV field period.

6. The image display apparatus of Claim 5,

wherein the coefficients determined based on the rule are coefficients that monotonously increase in ascending order of luminance weight in the reference TV field period.

7. The image display apparatus of Claim 5,

wherein the coefficients determined based on the rule are coefficients that increase in arithmetic progression in ascending order of luminance weight in the reference TV field period.

8. The image display apparatus of Claim 5,

wherein the coefficients determined based on the rule are coefficients that increase in geometric progression in ascending order of luminance weight in the reference TV field period.

9. The image display apparatus of ~~any one of Claims 4 and 5~~ Claim 4,

wherein the sub-fields whose luminance weights are obtained by the multiplications by the coefficients no greater than K include a sub-field whose luminance weight is obtained by a multiplication by a coefficient within a range that is fixed

irrespective of which value K takes.

10. The image display apparatus of ~~any one of Claims 4 and 8~~ Claim 4, wherein in each of at least two coding patterns among a plurality of coding patterns from which the coding pattern of the current TV field period is selected, at least two sets of three luminance weights selected in ascending order of luminance weight each meet the condition that the three luminance weights approximately have a proportion selected from the group consisting of "1:2:3", "1:2:4", "1:2:5", "1:2:6", "1:3:7", "1:4:9" "2:6:12", and "2:6:16".

11. The image display apparatus of Claim 9, wherein in each of at least two coding patterns among a plurality of coding patterns from which the coding pattern of the current TV field period is selected, at least two sets of three luminance weights selected in ascending order of luminance weight each meet the condition that the three luminance weights approximately have a proportion selected from the group consisting of "1:2:3", "1:2:4", "1:2:5", "1:2:6", "1:3:7", "1:4:9" "2:6:12", and "2:6:16".

12. The image display apparatus of ~~any one of Claims 1 and 8;~~ Claim 1

wherein when S denotes the sum of luminance weights of all sub-fields in the current TV field period and R is within a range from 0 to S, a gray level corresponding to R is expressed by selecting a combination of sub-fields whose luminance weights, when added together, are closest to R.

13. The image display apparatus of Claim 9,

wherein when S denotes the sum of luminance weights of all sub-fields in the current TV field period and R is within a range from 0 to S, a gray level corresponding to R is expressed by selecting a combination of sub-fields whose luminance weights, when added together, are closest to R.

14. The image display apparatus of Claim 10,

wherein when S denotes the sum of luminance weights of all sub-fields in the current TV field period and R is within a range from 0 to S, a gray level corresponding to R is expressed by selecting a combination of sub-fields whose luminance weights, when added together, are closest to R.

15. The image display apparatus of Claim 11,

wherein when S denotes the sum of luminance weights of all sub-fields in the current TV field period and R is within a range

from 0 to S, a gray level corresponding to R is expressed by selecting a combination of sub-fields whose luminance weights, when added together, are closest to R.

16. The image display apparatus of ~~any one of Claims 1 and 8,~~ Claim 1

wherein the selection of the combination of sub-fields for each pixel is controlled in accordance with one out of: an amount of movement from an image of a past TV field period to the image of the current TV field period; and an approximate value of the amount of movement.

17. The image display apparatus of Claim 9,

wherein the selection of the combination of sub-fields for each pixel is controlled in accordance with one out of: an amount of movement from an image of a past TV field period to the image of the current TV field period; and an approximate value of the amount of movement.

18. The image display apparatus of Claim 10,

wherein the selection of the combination of sub-fields for each pixel is controlled in accordance with one out of: an amount of movement from an image of a past TV field period to the image

of the current TV field period; and an approximate value of the amount of movement.

19. The image display apparatus of Claim 11,

wherein the selection of the combination of sub-fields for each pixel is controlled in accordance with one out of: an amount of movement from an image of a past TV field period to the image of the current TV field period; and an approximate value of the amount of movement.

20. The image display apparatus of Claim 12,

wherein the selection of the combination of sub-fields for each pixel is controlled in accordance with one out of: an amount of movement from an image of a past TV field period to the image of the current TV field period; and an approximate value of the amount of movement.

21. The image display apparatus of Claim 13,

wherein the selection of the combination of sub-fields for each pixel is controlled in accordance with one out of: an amount of movement from an image of a past TV field period to the image of the current TV field period; and an approximate value of the amount of movement.

22. The image display apparatus of Claim 14,

wherein the selection of the combination of sub-fields for each pixel is controlled in accordance with one out of: an amount of movement from an image of a past TV field period to the image of the current TV field period; and an approximate value of the amount of movement.

23. The image display apparatus of Claim 15,

wherein the selection of the combination of sub-fields for each pixel is controlled in accordance with one out of: an amount of movement from an image of a past TV field period to the image of the current TV field period; and an approximate value of the amount of movement.

24. The image display apparatus of Claim 16,

wherein in an image area where the amount of movement or the approximate value of the amount of movement is large, such combinations of sub-fields are selected that monotonously increase in time with increasing gray levels of input pixel image signals.

25. The image display apparatus of Claim 17,

wherein in an image area where the amount of movement or the approximate value of the amount of movement is large, such combinations of sub-fields are selected that monotonously increase in time with increasing gray levels of input pixel image signals.

26. The image display apparatus of Claim 18,

wherein in an image area where the amount of movement or the approximate value of the amount of movement is large, such combinations of sub-fields are selected that monotonously increase in time with increasing gray levels of input pixel image signals.

27. The image display apparatus of Claim 19,

wherein in an image area where the amount of movement or the approximate value of the amount of movement is large, such combinations of sub-fields are selected that monotonously increase in time with increasing gray levels of input pixel image signals

28. The image display apparatus of Claim 20,

wherein in an image area where the amount of movement or the approximate value of the amount of movement is large, such

combinations of sub-fields are selected that monotonously increase in time with increasing gray levels of input pixel image signals.

29. The image display apparatus of Claim 21,

wherein in an image area where the amount of movement or the approximate value of the amount of movement is large, such combinations of sub-fields are selected that monotonously increase in time with increasing gray levels of input pixel image signals.

30. The image display apparatus of Claim 22,

wherein in an image area where the amount of movement or the approximate value of the amount of movement is large, such combinations of sub-fields are selected that monotonously increase in time with increasing gray levels of input pixel image signals.

31. The image display apparatus of Claim 23,

wherein in an image area where the amount of movement or the approximate value of the amount of movement is large, such combinations of sub-fields are selected that monotonously increase in time with increasing gray levels of input pixel image

signals.

32. An image display apparatus, in which a current TV field period is divided into a plurality of sub-fields that are respectively given luminance weights and are arranged in order of time, and a gray-scale image for the current TV field period is displayed by coding input pixel image signals using different coding modes that are switched in accordance with an amount of movement from an image of a past TV field period to the image of the current TV field period, wherein a combination of sub-fields is selected for each pixel depending on the amount of movement, and a light emission state is sustained in each pixel during the selected sub-fields, characterized in that

the different coding modes are interspersedly applied to input pixel image signals that correspond to an image area where switching between the different coding modes is needed and that show a predetermined characteristic.

33. An image display apparatus, in which a current TV field period is divided into a plurality of sub-fields that are respectively given luminance weights and are arranged in order of time, and a gray-scale image for the current TV field period is displayed by coding input pixel image signals using different

coding modes that are switched in accordance with an amount of movement from an image of a past TV field period to the image of the current TV field period, wherein a combination of sub-fields is selected for each pixel depending on the amount of movement, and a light emission state is sustained in each pixel during the selected sub-fields, characterized in that

a signal used for switching between the different coding modes is arbitrarily space-modulated so that the different coding modes are interspersedly applied to input pixel image signals that correspond to an image area where the switching between the different coding modes is needed and that show a predetermined characteristic.

34. An image display apparatus, in which a current TV field period is divided into a plurality of sub-fields that are respectively given luminance weights and are arranged in order of time, and a gray-scale image for the current TV field period is displayed by coding input pixel image signals using different coding modes that are switched in accordance with an amount of movement from an image of a past TV field period to the image of the current TV field period, wherein a combination of sub-fields is selected for each pixel depending on the amount of movement, and a light emission state is sustained in each pixel during the

selected sub-fields, characterized in that

a signal used for switching between the different coding modes is regularly space-modulated so that the different coding modes are interspersedly applied to input pixel image signals that correspond to an image area where the switching between the different coding modes is needed and that show a predetermined characteristic.

35. An image display apparatus, in which a current TV field period is divided into a plurality of sub-fields that are respectively given luminance weights and are arranged in order of time, and a gray-scale image for the current TV field period is displayed by coding input pixel image signals using different coding modes which are switched in accordance with an amount of movement from an image of a past TV field period to the image of the current TV field period, wherein a combination of sub-fields is selected for each pixel depending on the amount of movement, and a light emission state is sustained in each pixel during the selected sub-fields, characterized in that

a signal used for switching between the different coding modes, when expressed pixel by pixel as a virtual image of a matrix form in a plane, assumes a shape that contains a zigzag as a main component which turns no more than once in a pixel, so

that the different coding modes are interspersedly applied to input pixel image signals that correspond to an image area where the switching between the different coding modes is needed and that show a predetermined characteristic.

36. The image display apparatus of Claim 35,

wherein the shape that contains the zigzag as the main component has a pattern in which adjacent pixels alternate between two states.

37. The image display apparatus of Claim 35,

wherein the shape that contains the zigzag as the main component is a shape that randomly combines zigzags each of which turns no more than once in a pixel.

38. The image display apparatus of ~~any one of Claims 32 and 35,~~ Claim 32

wherein the input pixel image signals that show the predetermined characteristic correspond to a non-edge image area.

39. An image display apparatus, in which a current TV field period is divided into a plurality of sub-fields that are

respectively given luminance weights and are arranged in order of time, and a gray-scale image for the current TV field period is displayed by coding input pixel image signals using different coding modes which are switched in accordance with an amount of movement from an image of a past TV field period to the image of the current TV field period, wherein a combination of sub-fields is selected for each pixel depending on the amount of movement, and a light emission state is sustained in each pixel during the selected sub-fields, characterized in that

a modulation signal having periodicity corresponding to no smaller than a pixel interval is applied to input pixel image signals that correspond to an image area where switching between the different coding modes is needed.

40. An image display apparatus, in which a current TV field period is divided into a plurality of sub-fields that are respectively given luminance weights and are arranged in order of time, and a gray-scale image for the current TV field period is displayed by coding input pixel image signals using different coding modes which are switched in accordance with an amount of movement from an image of a past TV field period to the image of the current TV field period, wherein a combination of sub-fields is selected for each pixel depending on the amount of movement,

and a light emission state is sustained in each pixel during the selected sub-fields, characterized in that

input pixel image signals corresponding to an image area where switching between the different coding modes is needed are modulated to shift a display position of the image area.

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